DENIC

Driven by recommendations by the public health community and consumer research Philip Morris developed and marketed in 1989 a cigarette with only residual amounts of nicotine in the tobacco. Early attempts in the 60s using solvent and steam extraction of nicotine were successful in removing nicotine but not successful in being selective for nicotine and maintaining acceptable taste characteristics. The development of a selective large scale extraction procedure of nicotine from tobacco was achieved by supercritical high pressure extraction with carbon dioxide, a technology adopted from the decaffeination of coffee (used e.g. by General Foods, which was acquired by Philip Morris in 1985). The tobacco treated in the commercial plant opened near Hopewell, VA, in 1989, contained less than 0.2% of the original natural nicotine. Testing confirmed the minute residual levels of nicotine. No significant change in the genotoxicity (Ames activity) of mainstream condensates of denicotinized tobacco as compared to untreated reference tobacco was observed. In addition to nicotine, oils and waxes, isoprenoids, carboxylic acid, hydrocarbons, tobacco-specific nitrosamines, cembranoids, and stigmasterol were detected either in samples of the supercritical carbon dioxide used to extract the tobacco or from laboratory scale experiments. Several non-menthol and menthol brands (brand names NEXT and Benson & Hedges DENIC) with less than 0.1 mg nicotine and 9 mg tar (FTC) were test marketed in 4 test markets in 4 states starting end of 1989. After a strong marketing campaign those brands reached a retail share of up to 2.7% during the first 2 months after the launch. Their sales, however, declined rapidly in those test markets and the denicotinized brands had to be withdrawn after a year and a half. Consumer feedback indicated that major task deficiencies of the denicotinized cigarette brands were the reason for low consumer acceptability. In laboratory settings the differences in consumers' perception were found not to be due to the lack of nicotine alone since adding back extracted materials including nicotine did not restore the cigarettes to the taste of unextracted cigarettes. Another attempt to launch these brands was undertaken in 1991, mixing denicotinized and untreated tobacco in order to obtain better consumer acceptance. The second trials were also unsuccessful due to a continued lack of consumer acceptance and the production was stopped. Post-market exposure tests addressing concerns about the potential change of smoking behavior and cigarette consumption could not be undertaken. The total investment for these activities amounted to approx. 300 million USD.

Source: https://www.industrydocuments.ucsf.edu/docs/jsfk0001